

OKLAHOMA AEROSPACE

CAREER PATHWAYS
FOR OKLAHOMA STUDENTS



OKLAHOMA
Aeronautics



OKLAHOMA Aeronautics

On July 12, 2022, aerospace industry leaders joined some of Oklahoma's leading educators at the National Weather Center in Norman to celebrate the growth of aviation education in Oklahoma. That night it was announced that Oklahoma had been named #1 in the nation for the number of schools approved to teach the AOPA "You Can Fly" High School Aviation Curriculum.

Oklahoma is continuing to build on its strong aviation history by working to ensure that students are equipped to enter Oklahoma's ever-growing aviation and aerospace industry. High schools across the state are partnering with airports, business and industry leaders, and post-secondary institutions to build robust aerospace STEM programs that allow students to acquire the skills necessary to enter an industry career or gain additional education from Oklahoma's Higher Education or CareerTech institutions. This will help ensure a bright future for Oklahoma's youth and build the workforce necessary to continue to propel the state's aerospace industry forward.

It is our hope that this resource provides students and educators with the information needed to find a pathway to a future in the aerospace industry. It is this partnership of students, educators, and industry working together in the development of educational pathways that will lead students to rewarding careers and will support the continued growth of the industry. ■





Aviators, Airlines, and Astronauts

Most historians agree that Oklahoma's first powered flight took place on March 18, 1910, near Capitol Hill High School in south Oklahoma City. On that spring day, traveling show pilot Charles Willard flew an exhibition with a Curtiss Pusher airplane, attaining an altitude of three hundred to four hundred feet at a speed of thirty miles per hour. After that, barnstormers, air shows, and fundraisers brought aviation to small and large Oklahoma towns alike.

From those early days, Oklahoma's contributions to aviation history continued to grow. World War I was the first conflict to have significant air power as part of the fighting. In 1915 the U.S. Army at Fort Sill near Lawton, Oklahoma, received a squadron of Curtiss biplanes for pilot training. As part of their work, pilots flew to various grass airstrips, one of which was located near the Oklahoma Capitol in Oklahoma City.



In postwar Oklahoma the returning veterans, with their recently acquired flying skills, created a new industry, "aviation." Air transport flourished in the 1920s. "Airmail" service arrived in Tulsa and Oklahoma City, providing solid support for the airports and putting the cities on the map. In 1928 Paul and Tom Braniff began an airline with service between Tulsa and Oklahoma City, later expanding across the country and eventually to South America. About the same time, Transcontinental Air Transport (TAT) established a stop at Waynoka, Oklahoma, as part of their route across the nation. TAT combined air and rail to move people from coast to coast in forty-eight hours.



WILL ROGERS & WILEY POST

Aviation manufacturing also developed after the war. Clyde Cessna, working out of Enid, Oklahoma, had tested his aircraft designs at the Great Salt Plains northwest of Enid. In 1928 William G. Skelly opened Spartan Aircraft Company in Tulsa. The pace of development affected the petroleum industry as well. Phillips Petroleum and Skelly Oil began producing high-grade aviation fuel in the state.

Beginning in the 1920s an increasing number of individuals became airplane pilots. In 1928 Tulsa's Spartan Aircraft began operating the Spartan School of Aeronautics (now Spartan College of Aeronautics and Technology) in Tulsa to provide pilot instruction. The Oklahoma Aeronautics Commission, established in 1931, began issuing pilot's licenses that year. Also



WALLY FUNK

that year Oklahoma pilot Wiley Post flew with his navigator, Harold Gatty, around the world in a record eight days and sixteen hours. In 1932 Oklahoma pilots Thomas Cox Allen and James Herman Banning became the first African Americans to complete a transcontinental flight. Aviation could be dangerous and sometimes brought tragedy. On August 15, 1935, Wiley Post and Oklahoma's patron saint of aviation, Will Rogers, were killed in an airplane crash near Point Barrow, Alaska.

After World War II many of the military airfields in the state became city- or state-owned facilities. The army's airfield at the Oklahoma City airport became the Civil Aeronautics Center and is now the Federal Aviation Administration's Mike Monroney Aeronautical Center.

Many people do not realize Oklahoma's amazing contributions to aerospace. Astronauts Gordon Cooper, Thomas Stafford, Fred Haise, Stuart Roosa, Owen Garriott, William Pogue, Shannon Lucid, and John Herrington all played a crucial role in space exploration. Geraldine "Jerri" Cobb became the first female astronaut trainee in 1960 and passed all three phases of testing but was unable to go into space because NASA canceled the female astronaut testing program in 1963.

In 1960, Wally Funk became the first female flight instructor at Fort Sill in Lawton, Oklahoma. Sixty-one years later, in July of 2021, 82-year-old Funk went into space in Blue Origin's New Shepherd Rocket, becoming the oldest person to fly to space.

Oklahoma's storied aviation history is the result of the work and determination of the many amazing Oklahomans who have not been afraid to reach for the skies. That same spirit continues today. ■



THOMAS STAFFORD



PILOT

- OKLAHOMA STATE UNIVERSITY
- SOUTHEASTERN OKLAHOMA STATE UNIVERSITY
- SPARTAN COLLEGE OF AERONAUTICS & TECHNOLOGY
- TULSA COMMUNITY COLLEGE
- THE UNIVERSITY OF OKLAHOMA



AVIATION MANAGEMENT

- EMBRY RIDDLE AERONAUTICAL UNIVERSITY
- OKLAHOMA STATE UNIVERSITY
- ROSE STATE COLLEGE
- SOUTHEASTERN OKLAHOMA STATE UNIVERSITY
- TULSA COMMUNITY COLLEGE
- THE UNIVERSITY OF OKLAHOMA



AEROSPACE SECURITY / CYBERSECURITY

- OKLAHOMA CITY COMMUNITY COLLEGE
- OKLAHOMA STATE UNIVERSITY
- OKLAHOMA STATE UNIVERSITY INSTITUTE OF TECHNOLOGY
- ROGERS STATE
- ROSE STATE COLLEGE
- SOUTHEASTERN OKLAHOMA STATE UNIVERSITY
- SOUTHWESTERN OKLAHOMA STATE UNIVERSITY
- THE UNIVERSITY OF TULSA



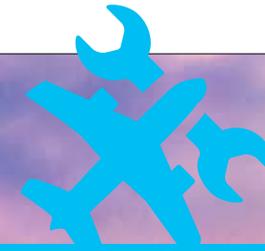
ENGINEER

- OKLAHOMA STATE UNIVERSITY
- ROSE STATE COLLEGE
- SOUTHWESTERN OKLAHOMA STATE UNIVERSITY
- THE UNIVERSITY OF OKLAHOMA



AIR TRAFFIC CONTROL / MANAGEMENT

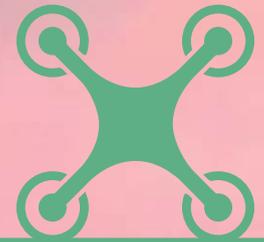
- TULSA COMMUNITY COLLEGE
- THE UNIVERSITY OF OKLAHOMA



MAINTENANCE TECHNICIAN PROGRAM

- CANADIAN VALLEY TECHNOLOGY CENTER*
- EMBRY RIDDLE AERONAUTICAL UNIVERSITY
- FRANCIS TUTTLE TECHNOLOGY CENTER
- GORDON COOPER TECHNOLOGY CENTER*
- METRO TECHNOLOGY CENTER*
- MID-DEL TECHNOLOGY CENTER
- MOORE NORMAN TECHNOLOGY CENTER* (PENDING FAA APPROVAL)
- RED RIVER TECHNOLOGY CENTER
- ROSE STATE COLLEGE
- SOUTHERN TECHNOLOGY CENTER* (PENDING FAA APPROVAL)
- SOUTHWEST TECHNOLOGY CENTER*
- SPARTAN COLLEGE OF AERONAUTICS & TECHNOLOGY*
- TULSA TECHNOLOGY CENTER*

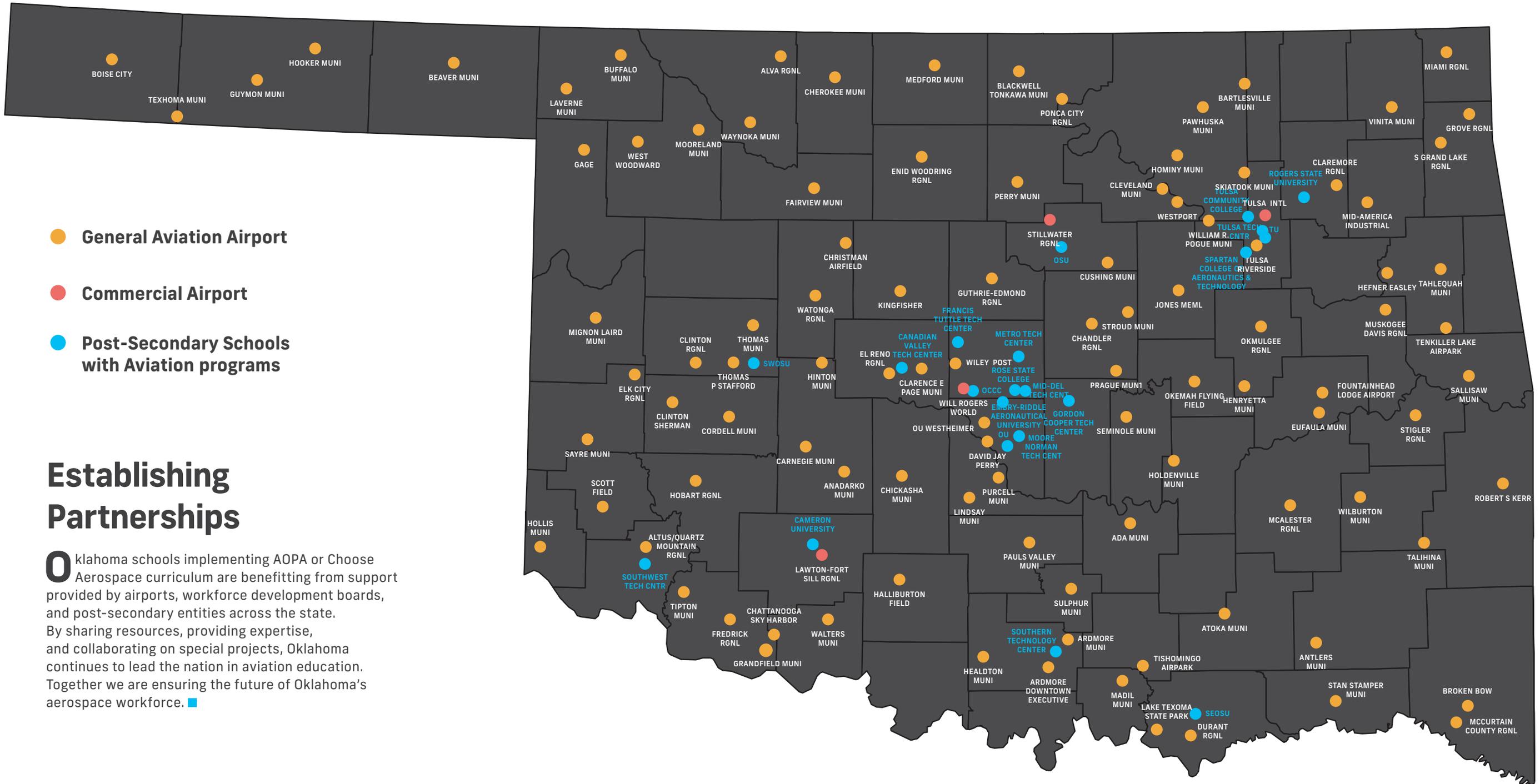
*FULL A&P



UAS

- CAMERON UNIVERSITY
- OKLAHOMA CITY COMMUNITY COLLEGE
- OKLAHOMA STATE UNIVERSITY
- ROGERS STATE UNIVERSITY
- ROSE STATE COLLEGE





- General Aviation Airport
- Commercial Airport
- Post-Secondary Schools with Aviation programs

Establishing Partnerships

Oklahoma schools implementing AOPA or Choose Aerospace curriculum are benefitting from support provided by airports, workforce development boards, and post-secondary entities across the state. By sharing resources, providing expertise, and collaborating on special projects, Oklahoma continues to lead the nation in aviation education. Together we are ensuring the future of Oklahoma's aerospace workforce. ■





“Many of the students in our program report not being satisfied with their career options before joining our Aviation Program and now they are bragging to their classmates about the activities they get to engage in, the industry professionals they meet, and the events they get to attend. Our Aviation program has made doing high school fun again!”

Dr. Jenny Peters
Pryor High School



CAMERON UNIVERSITY

Cameron University offers a drone micro-credential with classes in drone piloting and videography. cameron.edu |



CAREER TECH FULL A&P

The Oklahoma Department of Career and Technology Education (ODCTE) offers students the opportunity to gain work-ready skills for high demand, high wage aviation maintenance careers at technology centers across the state. Currently, five Oklahoma technology centers offer Airframe and Power Plant (A&P) programs which have been designed to prepare students to test for A&P ratings with the Federal Aviation Administration (FAA). Two additional technology centers are working to build A&P Programs that will allow Oklahoma to meet its growing workforce needs in aircraft maintenance. |



- Canadian Valley Technology Center
- Gordon Cooper Technology Center
- Metro Technology Center
- Southwest Technology Center
- Tulsa Technology Center
- Moore-Norman Technology Center*
- Southern Technology Center*



CAREER TECH SPECIALIZED PROGRAMS

Other Oklahoma Career and Technology Education Centers offer specialized programs such as aircraft structural technologies-sheet metal, aircraft composites, aircraft electrical systems, and avionics. These programs have been designed to arm students with the skills needed to meet specific workforce demands. The Oklahoma Department of Career and Technology Education (ODCTE) works regularly with military entities and industries across the state to not only recognize those needs but to develop certification programs that will offer students a viable pathway to industry jobs. |



- Francis Tuttle Technology Center
- Mid-Del Technology Center
- Metro Technology Center
- Red River Technology Center



EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

Embry-Riddle is the world’s pre-eminent university for aviation and aerospace education. Whether you’re interested in Applied Science; Aviation; Business; Computers & Technology; Engineering; Space; or Security, Intelligence and Safety, Embry-Riddle has a major for you. Our Oklahoma City Site, located near Tinker Air Force Base, offers associate, bachelor’s and master’s degrees, as well as undergraduate certifications, that will help you achieve a higher position in your current company or make you an attractive job candidate in a new business or field. A degree from Embry-Riddle Worldwide will give you the skills you need for success in many of Oklahoma top industries. erau.edu |



OKLAHOMA CITY COMMUNITY COLLEGE

The Unmanned Vehicle System (UVS) Option will equip students with the skillset required to operate ground, aerial, and marine vehicles. Students will receive hands-on experience in the classroom and in the field. Students will learn how to fly safely in the National Airspace while abiding by current regulations. With the use of 3D fabrication equipment, students will have the opportunity to design attachments and accessories for these systems. Unmanned Vehicle Systems (AAS), Cyber/Information Security (AAS), Engineering (AS) occc.edu |



OKLAHOMA STATE UNIVERSITY

Oklahoma State University’s Aviation and Space program prepares students for a range of careers within the aerospace industry, including professional pilot, aerospace security, aviation management and technical service management. You will receive high-quality instruction from experienced faculty who are committed to helping you find the right fit and follow your passion. OSU’s Professional Pilot option is approved by the Federal Aviation Administration as a qualifying degree program for the restricted privilege Airline Transport Pilot (R-ATP) go.okstate.edu |



OKLAHOMA STATE UNIVERSITY

OKLAHOMA STATE UNIVERSITY INSTITUTE OF TECHNOLOGY

OSU Institute of Technology’s Bachelor of Technology in IT-Cybersecurity & Digital Forensics is a fully online program that prepares students for the highly specialized work of protecting computers, computer systems, and networks from various threats such as hackers, cyberterrorists, viruses, and worms. As more organizations have realized the importance of cybersecurity, the demand for talent in computer security, computer forensics, IT security, and information assurance has increased rapidly. As a result, OSUIT’s program is designed for those wanting to join this fast-growing field. osuit.edu |



INSTITUTE OF TECHNOLOGY

- PILOT
- AVIATION MANAGEMENT
- AIR TRAFFIC CONTROL / MANAGEMENT
- UAS
- ENGINEER
- MAINTENANCE TECHNICIAN PROGRAM
- AEROSPACE/CYBER SECURITY



OKLAHOMA'S
AEROSPACE
INDUSTRY
SUPPORTS
MORE THAN
206,000
JOBS
WITH AN
AVERAGE
ANNUAL
WAGE OF
\$73,300



ROGERS STATE UNIVERSITY

Rogers State University's Unmanned Aircraft Systems option provides the technological skills to design, build (3D print), and fly a UAV as well as the required knowledge to take the FAA Part 107 Pilot's License Examination. This program also provides the education required to start and run an independent business (UAS services). rsu.edu |  



ROSE STATE COLLEGE

Rose State College is a public, two-year institution with an "open-door" admissions policy. Rose State welcomes more than 13,000 students each year to its 120-acre campus and online classrooms and is dedicated to helping each and every student succeed. Located in Midwest City near Tinker Airforce Base, we are committed to providing academic majors and Workforce initiatives and trainings that serve the students and industry partners of aerospace.

rose.edu |    



SOUTHEASTERN OKLAHOMA STATE UNIVERSITY

The Aviation Sciences Institute [ASI] provides its students with the highest quality education in aviation and flight training possible. The ASI fundamentally believes that the best trained students are the safest and most successful aviation professionals. The ASI will strive to excel as a world leader in Aviation Education. To that end, the Aviation Sciences Institute will provide the students with the most current information, technology, and personalized training available in the aviation and aerospace profession.

online.se.edu |   



SOUTHWESTERN OKLAHOMA STATE UNIVERSITY

At Southwestern Oklahoma State University, aerospace and defense workforce development are nothing new. They are part of the very fabric of the university and have become an integral part of the college's continued growth in innovation. SWOSU sends a steady stream of graduates into the aerospace and aviation industries; locally, Tinker Air Force Base and Boeing are consistently the largest employers of SWOSU graduates. swosu.edu |  



SPARTAN COLLEGE OF AERONAUTICS & TECHNOLOGY

Go forward with aviation training at Spartan College of Aeronautics and Technology. We train the next generation of aviation professionals with technology-focused practical skills that emphasize safety and we have been doing it for nearly 100 years. Whether you are interested in pursuing training as a professional pilot or prefer to keep your boots on the ground as an aviation maintenance technician, our programs are hands-on and designed to prepare you to apply your skills in the growing aviation industry. Reach out today and let's go forward together. spartan.edu |  



TULSA COMMUNITY COLLEGE

Housed at the Tulsa Community College Riverside Campus and Aviation Center, Tulsa Community College's academic programs include Professional Pilot, Air Traffic Control, and Aircraft Dispatch as well as concurrent enrollment and university-transfer general education classes. The school houses a fleet of technically advanced aircraft; a \$1.4 million air traffic control simulator; and a simulation lab that includes a full-motion flight training simulator. tulsacc.edu |   



THE UNIVERSITY OF OKLAHOMA

The OU College of Atmospheric and Geographic Sciences offers a bachelor's degree with a major in Aviation that can help perspective students achieve their career goals. The Bachelor of Science with a Major in Aviation offers four concentrations for students to consider. The concentrations allow students to develop the knowledge, leadership, and communication skills required to work in management positions. The curriculum includes a strong foundation in aviation principles, as well as the laws and regulations that may affect your role in the field. Each concentration has a strong business focus to prepare students to function efficiently in the business world of aviation or other related jobs. ou.edu |    



THE UNIVERSITY OF TULSA

Ranked nationally by U.S. News Best Undergraduate Cybersecurity Programs, TU offers an undergraduate minor, a B.S. and M.S. in Cyber Security, as well as a Ph.D in Cyber Studies. Graduates are equipped to meet employer demands and serve in intellectually stimulating and personally rewarding roles that strengthen national and global security, filling one of the more than one million open cyber security jobs. TU's cyber program is certified by the NSA and US Department of Homeland Security as a Center of Excellence in Information Assurance Education, Research, and Cyber Operations. ready.utulsa.edu | 



-  PILOT
-  AVIATION MANAGEMENT
-  AIR TRAFFIC CONTROL / MANAGEMENT
-  UAS
-  ENGINEER
-  MAINTENANCE TECHNICIAN PROGRAM
-  AEROSPACE/CYBER SECURITY



“This program has given me the perfect opportunity to get immersed in aviation! As students we are constantly getting opportunities to explore the career pathways that we are interested in.”

Alexis Hannah
Oklahoma Aviation
Academy, Norman

Oklahoma students who choose to enter an aerospace or aviation pathway have the opportunity to pursue high-demand, high-wage careers that will not only be of benefit to them but will ensure the future of Oklahoma’s aerospace industry. Listed below are examples of the many career options available to students and the average Oklahoma salary for each position. ■

	Customer Service Representative	\$31,435
	Aircraft Structure, Surface, Rigging & System Assembler	\$40,707
	Welder, Cutter, Solderer & Brazer	\$40,844
	Machinist	\$41,608
	Aircraft Mechanic & Service Technician	\$56,320
	Avionics Technician	\$56,448
	Flight Attendant	\$63,760
	Electrical & Electronic Engineering Technologist	\$66,882
	Accountant & Auditor	\$73,286
	Computer Programmer	\$77,180
	General & Operations Manager	\$84,386
	Aerospace Engineer	\$95,589
	Airline Pilot	\$100,405
	Air Traffic Controller	\$129,000



AOPA “You Can Fly” High School Aviation Curriculum

Across Oklahoma, schools are recognizing the importance of offering high-quality STEM opportunities for students, and with the aviation industry facing a nationwide shortage of pilots, mechanics, and skilled aviation professionals, there has never been a better time to introduce students to aerospace and aviation. To that end, the Aircraft Owners and Pilots Association (AOPA) offers four-year pathways of coursework designed to prepare students for post-secondary education programs and industry careers. “The curriculum, a collection of practical, rigorous, and engaging activities, is offered free to schools and provides students the opportunity to learn the basic foundational principles of aviation and

aerospace. Schools may choose to offer the Pilot/General Aviation Pathway and/or the UAS/Drone Pathway which allows students to work towards their FAA private pilot’s license and/or Part 107 UAS certification. Each pathway provides schools with four years of quality curriculum for students enrolled in grades 9-12.

Both pathways offer students the opportunities to be introduced to the various careers available in the aviation and aerospace industry.

For more information visit youcanfly.aopa.org/high-school. ■



“Choose Aerospace” High School Maintenance Curriculum

“Choose Aerospace” is a computer-based aircraft maintenance curriculum designed for high school juniors and seniors. The curriculum aligns with Federal Aviation Administration (FAA) Mechanic Airman Certification Standards (ACS) and covers the knowledge elements tested in the FAA mechanic general written knowledge exam. The modular design of the content facilitates a flexible approach which allows for a wide range of

schedule and program needs. Choose Aerospace utilizes a hybrid approach to learning, combining traditional delivery methods with innovative e-learning methods. The content is computer-based but no special hardware or software is required. There is a cost to schools.

For more information, visit chooseaerospace.org/curriculum. ■

The Oklahoma Aeronautics Commission is dedicated to supporting the growth of aviation education by working with schools in the development of both the AOPA “You Can Fly” program and the Choose Aerospace program. As of the 2022-2023 academic year Oklahoma leads the nation with 57 schools implementing the AOPA curriculum and 7 schools implementing the Choose Aerospace curriculum. These schools range in size from the very smallest to some of the largest and represent all corners of Oklahoma. These curriculum offerings make it easy for schools to partner with area airports and regional industries to further build high quality aviation STEM programs. ■



OKLAHOMA Aeronautics

The Oklahoma Aeronautics Commission serves as the lead government agency to support, promote, and advocate for the state's second largest industry, aviation and aerospace. The agency is responsible for the administration and/or coordination of a statewide system of airports, cooperating with and assisting local, state, and federal authorities in the development of aviation infrastructure and facilities, acting as the central resource point in state government for the up-and-coming Unmanned and Advanced Air Mobility sector, and fostering the success of the state's overall aerospace industry. The Commission administers a robust aerospace and aviation education grant program to help the aviation and aerospace industry with their workforce challenges by introducing Oklahoma students to the available STEM careers that the industry has to offer.

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